

We claim:

1. A power plant and driveline arrangement for a vehicle having at least two wheel units and a body supported on said wheel units comprising:
  - an engine supported on said body;
  - a transmission supported on said body disposed on the underside of said engine;
  - a first means for transferring drive from an output shaft of said engine to an input shaft of said transmission;
  - a second means for transferring drive from an output shaft of said transmission to forwardly and rearwardly projecting output shafts;
  - a first wheel carrier supported on said body forwardly of said second drive transferring means, having an input shaft drivingly coupled to said forwardly projecting output shaft of said second drive transferring means, and a pair of laterally projecting half shafts operatively connected to the wheels of a first wheel unit; and
  - a second wheel carrier supported on said body rearwardly of said second drive transferring means, having an input shaft drivingly coupled to said rearwardly projecting output shaft of said second drive transferring means, and a pair of laterally projecting half shafts operatively connected to the wheels of a second wheel unit.
2. An arrangement according to claim 1 including a third means for transferring drive operatively interconnecting said transmission output shaft and said second means for transferring drive, selectively operable to transmit a first drive, a second drive or no drive.
3. An arrangement according to claim 1 including a pair of longitudinally disposed drive shafts, one operatively interconnecting an output shaft of said second drive transferring

means and said input shaft of said first carrier, and the other one operatively interconnecting an output shaft of said second drive transferring means and said input shaft of said second carrier.

4. An arrangement according to claim 1 including a hydraulic system for operating selected systems on said vehicle, having a motor drivingly connected to said first drive transferring means.

5. An arrangement according to claim 1 wherein said engine comprises a diesel engine.

6. An arrangement according to claim 1 wherein said engine comprises a turbine engine.

7. An arrangement according to claim 1 wherein said engine comprises a Wankel engine.

8. An arrangement according to claim 1 wherein said first drive transmitting means comprises a gear train.

9. An arrangement according to claim 1 wherein said second drive transmitting means includes a gear train.

10. An arrangement according to claim 1 wherein said second drive transferring means is operative to proportion transmitted torque, 30% to said first carrier and 70% to said second carrier.

11. An arrangement according to claim 1 wherein said second drive transferring means is operable selectively to provide differential drive between said first and second carrier and to lock to evenly provide drive to said first and second carriers.

12. An arrangement according to claim 1 wherein said second drive transferring means is operable to provide differential drive between said first and second carriers.

13. An arrangement according to claim 3 wherein said second drive transferring means is operable to provide inter-axle differential drive.

14. An arrangement according to claim 1 wherein said couplings of said shafts comprise gear couplings.

15. An arrangement according to claim 3 wherein said couplings of said drive shafts comprise gear couplings.

16. An arrangement according to claim 1 including a selectively operable brake operatively connected to said second drive transferring means.

17. An arrangement according to claim 1 wherein said drive transferring means are disposed within the interior of said body and said carriers are disposed on the exterior of said body.

18. An arrangement according to claim 17 wherein said carriers are secured to and depend from transversely disposed panels of said body.

19. An arrangement according to claim 1 wherein each of said carriers is provided with an inter-wheel differential.

20. An arrangement according to claim 1 wherein said carriers are substantially identical, and said first carrier is angularly displaced  $180^\circ$  relative to said second carrier, about vertical axes.

21. An arrangement according to claim 1 including a pair of disc brake assemblies mounted on each of said carriers, and wherein each of said assemblies is operatively connected to a half shaft.

22. An arrangement according to claim 1 including drive shafts operatively interconnecting said second drive transferring means and said carriers through gear couplings,

and wherein said carriers are mounted on said body on the exterior thereof and said drive transferring means, drive shafts and gear couplings are disposed within the interior of said body.

23. An arrangement according to claim 1 wherein said vehicle is provided with only two wheel units to provide a vehicle with a 4x4 wheel configuration.

24. A power plant and driveline arrangement for a vehicle having at least two wheel units and a body supported on said wheel units, comprising:

- an engine supported on said body;

- a transmission supported on said body, disposed on the underside of said engine;

- a first means for transferring drive from an output shaft of said engine to an input shaft of said transmission;

- a second means for transferring drive from an output shaft of said transmission to forwardly and rearwardly projecting output shafts;

- a first carrier supported on said body forwardly of said second drive transferring means, having an input shaft drivingly connected to said forwardly projecting shaft of said second drive transferring means and a pair of laterally projecting half shafts operatively connected to a set of wheels of a wheel unit;

- a second carrier supported on said body rearwardly of said second drive transferring means, having an input shaft drivingly coupled to said rearwardly projecting output shaft of said second drive transferring means, and a pair of laterally projecting half shafts operatively connected to a set of wheels of a wheel unit; and

- a third carrier supported on said body rearwardly of said second carrier, having an input shaft drivingly coupled to an output shaft of said second carrier, and pair of laterally projecting half shaft operatively connected to a set of wheels of a wheel unit.

25. An arrangement according to claim 24 including a third drive transferring means operatively interconnecting said transmission output shaft and said second drive transferring means, selectively operable to transmit drive at a first speed, transmit drive at a second speed and not transmit drive in a neutral condition.

26. An arrangement according to claim 24 including a set of longitudinally disposed drive shafts, one operatively interconnecting an output shaft of said second drive transferring means and said input shaft of said first carrier, one operatively interconnecting an output shaft of said second drive transferring means and said input shaft of said second carrier and one operatively interconnecting an output shaft of said second carrier and an input shaft of said third carrier.

27. An arrangement according to claim 26 including a hydraulic system for operating selected systems on said vehicle, having a motor drivingly connected to said first drive transferring means.

28. An arrangement according to claim 24 wherein said second drive transmitting means is operable to proportion transmitted torque, 30% to said first carrier and 70% to said second and third carriers.

29. An arrangement according to claim 24 wherein said second drive transferring means is operable selectively to provide differential drive between said first and second carriers and to lock to evenly provide drive to said first and second carriers.

30. An arrangement according to claim 24 wherein said second drive transferring means is operable to provide differential drive between said first and second carriers.

31. An arrangement according to claim 26 wherein said second drive transferring means is operable to provide inter-axle differential drive.

32. An arrangement according to claim 24 wherein said couplings of said second drive transferring means of said shafts comprise gear couplings.

33. An arrangement according to claim 25 including a selectively operable brake operatively connected to said third drive transferring means.

34. An arrangement according to claim 24 wherein each of said carriers is provided with an inter-wheel differential.

35. A power plant and driveline arrangement for a vehicle having at least two wheel units and a body supported on said wheel units, comprising:

- an engine supported on said body;

- a transmission supported on said body, disposed on the underside of said engine;

- a first means for transferring drive from an output shaft of said engine to an input shaft of said transmission;

- a second means for transferring drive from an output shaft of said transmission to forwardly and rearwardly projecting output shafts;

- a first carrier supported on said body forwardly of said second drive transferring means, having an input shaft drivingly connected to said forwardly projecting shaft of said second drive transferring means and a pair of laterally projecting half shafts operatively connected to the wheels of a wheel unit;

- a second carrier supported on said body rearwardly of said second drive transferring means, having an input shaft drivingly coupled to said rearwardly projecting output shaft of said second drive transferring means, and a pair of laterally projecting half shafts operatively connected to wheels of a wheel unit;

a third carrier supported on said body rearwardly of said second carrier, having an input shaft drivingly coupled to an output shaft of said second carrier and a pair of laterally projecting half shafts operatively connected to wheels of a wheel unit; and

a fourth carrier supported on said body forwardly of said first carrier, having an input shaft drivingly coupled to an output shaft of said first carrier, and a pair of laterally projecting half shafts operatively connected to wheels of a wheel unit.

36. An arrangement according to claim 35 including a third means for transferring drive operatively interconnecting said transmission output shaft and said second means for transferring drive, selectively operable to transmit drive at a first speed, transmit drive at a second speed and transmit no drive in a neutral position.

37. An arrangement according to claim 35 including a set of longitudinally disposed drive shafts, one operatively interconnecting an output shaft of said second drive transferring means and an input shaft of said first carrier, one operatively interconnecting an output shaft of said second drive transferring means and said input shaft of said second carrier, one operatively interconnecting an output shaft of said second carrier and an input shaft of said third carrier and one operatively interconnecting an output shaft of said first carrier and an input shaft of said fourth carrier.

38. An arrangement according to claim 35 wherein said second drive transferring means is operative to proportion transmitted torque, 30% to said first and fourth carriers and 70% to said second and third carriers.

39. An arrangement according to claim 35 wherein said second drive transferring means is operable to provide differential drive between said first and second carriers.



40. An arrangement according to claim 37 wherein said second drive transferring means is operable to provide inter-axle differential drive.

41. An arrangement according to claim 35 wherein said couplings of said shafts connected to said second drive transferring means comprise gear couplings.

42. An arrangement according to claim 35 including a selectively operable brake operatively connected to said second drive transferring means.

43. An arrangement according to claim 35 wherein each of said carriers is provided with an inter-wheel differential.

44. An arrangement according to claim 35 wherein said carriers are substantially identical and each of said first and fourth carriers is angularly displaced 180° relative to said second carrier, about vertical axes.

45. An arrangement according to claim 35 including a pair of disc brakes mounted on each of said carriers and wherein each of said assemblies is operatively connected to a half shaft.

46. A power plant and driveline arrangement for a vehicle having at least two wheel units and a body supported on said wheel units comprising:

an engine supported on said body;

a transmission supported on said body, disposed on the underside of said engine;

a first means for transferring drive from an output shaft of said engine to an input shaft of said transmission;

second means for transferring drive from an output shaft of said transmission to forwardly and rearwardly projecting output shafts;

a first carrier supported on said body forwardly of said second drive transferring means, having an input shaft drivingly connected to said forwardly projecting shaft of said second drive



transferring means and a pair of laterally projecting half shafts operatively connected to the wheel of a wheel unit;

a second carrier supported on said body rearwardly of said second drive transmitting means, having an input shaft drivingly coupled to rearwardly projecting output shaft of said second drive transferring means, and a pair of laterally projecting half shafts operatively connected to wheels of said wheel unit;

a third carrier supported on said body rearwardly of said second carrier, having an input shaft drivingly coupled to an output shaft of said second carrier and a pair of laterally projecting half shafts operatively connected to wheels of a wheel unit; and

a fourth carrier supported on said body rearwardly of said third carrier, having an input shaft drivingly coupled to an output shaft of said third carrier and a pair of laterally projecting half shafts operatively connected to wheels of a wheel unit.

47. A power plant and driveline arrangement for a vehicle having at least two wheel units and a body supported on said wheel units comprising:

an engine supported on said body;

a transmission supported on said body disposed on the underside of said engine;

a first means for transferring drive from an output shaft of said engine to an input shaft of said transmission;

a second means for transferring drive from an output shaft of said transmission to forwardly and rearwardly projecting output shafts;

a first carrier supported on said body forwardly of said second drive transferring means, having an input shaft drivingly connected to said forwardly projecting shaft of said second drive

transferring means, and a pair of laterally projecting half shafts operatively connected to the wheels of a first wheel unit;

a second wheel carrier supported on said body rearwardly of said second drive transferring means, having an input shaft drivingly coupled to said rearwardly projecting output shaft of said second drive transferring means, and a pair of laterally projecting half shafts operatively connected to a set of wheels of a wheel unit;

a third carrier supported on said body rearwardly of said second carrier, having an input shaft drivingly coupled to an output shaft of said second carrier, and a pair of laterally projecting half shafts operatively connected to a set of wheels of a wheel unit;

a fourth carrier supported on said body forwardly of said first carrier, having an input shaft drivingly coupled to an output shaft of said first carrier, and a pair of laterally projecting half shafts operatively connected to a set of wheels of a wheel unit; and

a fifth carrier supported on said body rearwardly of said third carrier, having an input shaft drivingly coupled to an output shaft of said third carrier and a pair of laterally projecting half shafts operatively connected to a set of wheels of a wheel unit.

48. An arrangement according to claim 47 including a third drive transferring means operatively interconnecting said output shaft of said transmission and said second means for transferring drive, selectively operable to transmit drive at a first speed, transfer drive at a second speed and not transfer drive in a neutral condition.

49. An arrangement according to claim 47 including a set of longitudinally disposed drive shafts, one operatively interconnecting an output shaft of said second drive transferring means and an input shaft of said first carrier, one operatively interconnecting an output shaft of second drive transferring means and said input shaft of said second carrier, one operatively

interconnecting an input shaft of said third carrier and an output shaft of said second carrier, one operatively interconnecting an output shaft of said first carrier and an input shaft of said fourth carrier and one operatively interconnecting an output shaft of said third carrier and an input shaft of said fifth carrier.

50. An arrangement according to claim 47 wherein said second drive transferring means is operable to proportion transmitted torque, 30% to said first and fourth carriers and 70% to said second, third and fifth carriers.

51. An arrangement according to claim 47 wherein said second drive transferring means is operable to provide differential drive between said first and second carriers.

52. An arrangement according to claim 49 wherein said second drive transferring means is operable to provide inter-axle differential drive.

53. An arrangement according to claim 47 wherein said couplings of said shafts to said second drive transferring means comprise gear couplings.

54. An arrangement according to claim 48 including a selectively operable brake operatively connected to said third drive transferring means.

55. An arrangement according to claim 48 wherein each of said carriers is provided with an inter-wheel differential.

56. An arrangement according to claim 47 wherein said carriers are substantially identical, and each of said first and fourth carriers is angularly displaced 180° relative to said second carrier, about vertical axes.

57. An arrangement according to claim 47 including a pair of disc brake assemblies mounted on each of said carriers, and wherein each of said assemblies is operatively connected to a half shaft.